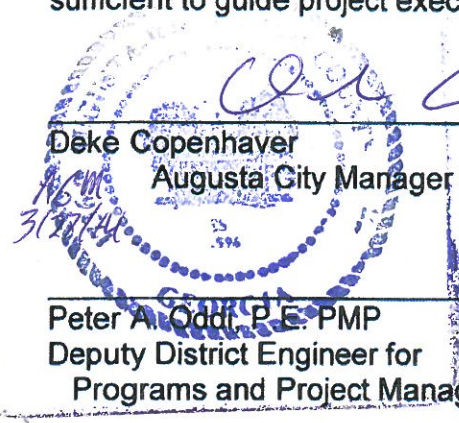


## PMP ACCEPTANCE SHEET

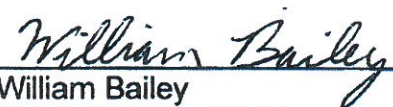
I have reviewed this document and certify that it contains accurate content and is sufficient to guide project execution.

  
Dake Copenhaver  
Augusta City Manager (Sponsor)

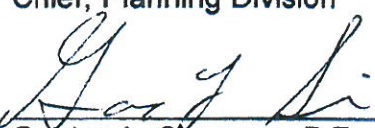
3/31/14  
Date

  
Peter A. Oddi, P.E. PMP  
Deputy District Engineer for  
Programs and Project Management

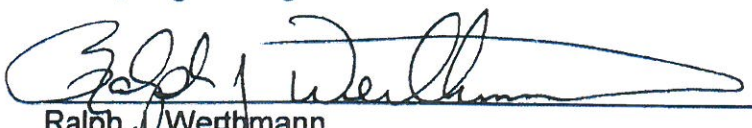
\_\_\_\_\_  
Date

  
William Bailey  
Chief, Planning Division

24 Jan 14  
Date

  
Gordon L. Simmons, P.E.  
Chief, Engineering Division

13 Jan 14  
Date

  
Ralph J. Werthmann  
Chief, Real Estate Division

1/10/14  
Date

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### LIST OF APPENDICES

<u>Appendix No.</u>	<u>Appendix Title</u>
1	SCHEDULE

### **Project Management Plan**

The content of the PMP is dictated by the five tasks key to the success of a project. Those five key tasks for project success are:

- obtaining agreement on project goals and expectations (particularly regarding scope, project quality, safety, costs, and schedule);

- developing a plan for acquiring and delivering a project that meets customer expectations, objectives, and needs;
- establishing a good internal and external communications strategy;
- defining and controlling the scope of the project; and
- defining the resources necessary for project success.

## **1.0 Customer Objectives and Project Objectives:**

It's anticipated that successful completion of this project will produce the following outcomes:

- To reduce flooding along Rocky Creek at a minimum of 25 year flood event.
- To relocate four homes from the flood plain and provide a recreational space.
- NEPA approval and draft report approval that will move forward to construction.

## **2.0 SCOPE OF WORK:**

### **2.1 PROJECT REQUIREMENTS STATEMENT:**

Authority for this study was provided in Section 414 of the 1996 Water Resources Development Act (WRDA), 104th Congress, 2d Session, Public Law 104-303. This law provides the Secretary of the Army authority to address current and future needs for flood damage prevention and reduction, ecosystem restoration, water supply, and other related water resources needs within the Savannah River Basin. Augusta-Richmond County, Georgia is the non-federal sponsor for this project.

Flood events in the Augusta area that have produced significant property damage over the past several years include:

Table 1 – Previous Floods

<b>Date of Flood</b>	<b>Rainfall total Inches</b>	<b>Damages</b>
Oct. 1990	15- 18	\$150,000,000
August 1992	5-6	\$50,000
February 1998	3	\$2,000
September 1998	8-9	\$23,000
June 2000	4-6	\$700,000

The Rocky Creek Basin encompasses the central portion of the City of Augusta, mostly south of Gordon Highway (U.S. Route 78) and north of Bobby Jones Expressway (Interstate 520). Rocky Creek drains about 17 square miles and is about nine miles long from its headwaters north of Gordon Highway, to its mouth at Phinizy Swamp, where it joins Augusta Canal. The basin has experienced numerous flood-related problems over the past several years. The city had historically addressed flooding of lands and structures adjacent to Rocky Creek by installation of a system of damage reduction, water supply, and hydropower measures, the former of which was directed at effective channelization of flood flows out of the Rocky Creek Basin, through Augusta Canal, and thence, into the Savannah River. Despite the presence of this usually highly effective water management system, however, changes in the operations of commercial water users on Augusta Canal, long-term urbanization of the watershed, and inability to address floodplain management needs due to early development of that portion of the watershed, has led to the need to modify portions of the existing system for the goals of flood damage reduction. Floods during the past decade have led to increasing awareness of the flood threat, and the knowledge that potential solutions might be beyond the ability of the city and county to solve and fund on their own.

This feasibility study will evaluate a broad range of potential measures to reduce damages and management risks from flooding. These management measures range from 'structural', those that physically alter the system, to 'non-structural' measures that do not require physical alternation of the floodplain, but seek to reduce damages and manage risks by means of management techniques, removal, elevating or flood-proofing of structures, insurance against damage, and other means. As required by law, the report will identify the National Economic Development or 'NED' Plan. The NED Plans are those that maximize net benefits (overall damage reduction). The report will also identify and discuss the Locally Preferred Plan (LPP), which will be chosen by the non-federal sponsors as the plan which they think best meets the needs of the entire community in which the measures would be implemented.

## **2.2 Scope Management Plan:**

This Scope of Work (SOW) outlines the tasks required to provide the information to complete the feasibility study and provide the appropriate Engineering and Planning models and the Feasibility Report and Environmental Assessment.

**Total Feasibility Scope of Work Required  
Table 2**

<b>Division</b>	<b>Total Cost</b>
Planning	\$249,200
Project Management & Programs	\$84,700
Engineering	\$74,000
Real Estate	\$55,000
Quality Assurance and Quality Control Reviews	\$175,000
<b>Total</b>	<b>\$637,900</b>

**PLANNING DIVISION  
Total Estimated Cost: \$249,200  
Table 3**

<b>Labor/Task</b>	<b>Cost</b>
Environmental	\$95,0000
Cultural Resources	\$15,000
Economics	\$79,200
Plan formulator	\$60,000
<b>TOTAL</b>	<b>\$249,200</b>

**PD-EM - \$95,000**

Environmental studies will be performed in accordance with the National Environmental Policy Act (NEPA), ER 1105-2-100, and other applicable laws, Statutes, Executive Orders, and regulations. NEPA documentation will be coordinated with state and Federal environmental agencies and the public. Costs for all technical subtasks include attending study meetings (internal, external, public) for the duration of the study; conducting a wetlands delineation for the Rosedale Dam Detention Pond site (a survey of wetland flags will be required); interim (when task is completed) and final write-ups of all technical work to a quality that may be directly incorporated into overall project reports; responses to comments; estimating PED costs; travel and providing interim information as requested by the planning technical leader.

**Background Biological Investigation.** Existing literature concerning the environmental resources of the study area will be researched and documented. An inventory of natural resources in the study area will be prepared.

**Fish and Wildlife Coordination Act Report (FWCAR).** The U.S. Fish and Wildlife Service (USFWS) (or contractor) will perform this task pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (PL 85-624). A scope of work and will be prepared and funds will be provided to the USFWS (or contractor) to review the pertinent literature; to perform any fieldwork needed to evaluate the impacts of the considered action and alternatives on fish and wildlife resources, and to prepare a Fish and Wildlife Act Report. This report will assist the USACE in assessing project impacts, identify appropriate fish and wildlife habitat mitigation measures, and will meet the coordination requirements of the FWCA.

**Endangered Species Consultation.** This task will include a review of information provided by the USFWS and Georgia Department of Natural Resources on species listed as threatened or endangered that may occur in the study area, and preparation of a biological assessment, if required, to address potential impacts to threatened and endangered species. Based on the information provided in the Biological Assessment, a determination will be made as to whether the proposed project may affect any listed species. If any of the listed species may be affected, then consultation with the USFWS will be initiated and a Biological Opinion will be requested. This work will be conducted in accordance with the regulations promulgated pursuant to Section 7 of the Endangered Species Act of 1973, as amended.

**Wetland Delineation and Survey.** This task will be performed to identify and evaluate the potential for direct and indirect impacts to wetlands in the study area, specifically the vicinity of the Rosedale Dam Renovation and Detention Basin.

**National Environmental Policy Act (NEPA) Documentation and Coordination.** This task will include the preparation of a NEPA document in accordance with the National Environmental Policy Act of 1969, as amended (PL 91-190) and the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508). In accordance with NEPA, the considered action and alternatives will be coordinated with the appropriate Federal, state and local agencies as well as members of the public who are likely to be affected by the project. Appropriate scoping of the significant issues will be conducted by the Corps with pertinent Federal and State agencies and key stakeholders. If deemed appropriate, a public meeting/hearing or information session will be conducted.

**Coordination Meetings and Management.** Attend interagency coordination meetings and in-house study team meetings as required.

**Section 404(b)(1) Evaluation:** The following evaluation is prepared in accordance with Section 404(b)(1) of the Clean Water Act of 1977 to evaluate the environmental effects of the proposed placement of dredged or fill material in waters of the United States. Specific portions of the regulations are cited and an explanation of the regulation is given as it pertains to the project. These guidelines can be found in Title 40, Part 230 of the Code of Federal Regulations (CFR). Since the proposed action lies within jurisdictional waters of the US, an evaluation of the deposition of dredged or fill material according to Section 404(b)(1) guidelines promulgated by the Environmental Protection Agency in 40 CFR 230, will be prepared by the Corps and appropriate mitigation measures developed.

**Water Quality Certification:** The Corps is required to obtain Water Quality Certification from the Georgia DNR-EPD in accordance with the provisions of Section 401 of the Clean Water Act, which is required to conduct an activity in, on, or adjacent to the waters of the State of Georgia. GADNR has a history of not allowing detention structures within perennial streams in Georgia. However, this District successfully obtained certification for the detention basins proposed in the 2005 Environmental Assessment. The District will coordinate with GADNR EPD to determine if USACE should re-apply for WQ certification for this project or if the current WQ Certification is still valid.

**Assumptions for NEPA Study:**

Assumes regulatory approval and no required mitigation; costs may rise considerably if environmental mitigation is required.

Assumes no changes to the current design of the projects two features: 1) Rosedale Dam Renovation and 2) Kissingbower Park buyout non-structural alternative. These features are the same design proposed in the 2005 EA/FONSI.

Assumes in-house resources are available to conduct wetland delineation in FY14/FY15

If there are significant design changes, the existing FWCAR may not apply and need to be revised resulting in additional expense for the USFWS to complete this task.

<b>Task</b>	<b>Cost/Day</b>	<b># of Days</b>	<b>Total Labor Costs</b>
Wetland Survey			\$25,000
Prepare draft EA/FONSI (Note: EA costs include all PDT and interagency meetings, DQC, ATR, Risk Register, and Section 404(b)(1) Analysis)	\$970	51.5	\$50,000
Distribute Draft EA for Public & Agency Comment	\$970	5	\$5,000
Revise draft/Address Public/Agency Comments	\$970	10	\$10,000
Finalize EA/Provide responses to comments to agencies/public/Route FONSI for signature	\$970	5	\$5,000
<b>TOTAL</b>			<b>\$95,000</b>

**Cultural Resources - \$15,000**

Cultural resources compliance will be a phased approach with report reviews and database searches conducted in Phase I during Feasibility Phase and fieldwork investigations performed in Phase II when the project moves to Planning, Engineering and Design (PED) Phase. A more detailed explanation of the work required to comply with Section 106 of the National Historic Preservation Act (NHPA) is below.

No field investigations will be conducted during Feasibility Phase. In 2005 Savannah District contracted for a Phase I cultural resources investigation of 127 acres on Rocky Creek, Richmond County, Georgia. At that time the project included a wide array of alternatives that are not part of the presently defined project. The Phase I report that was prepared in 2005 will be reviewed to determine if the areas surveyed include the now-defined project features/areas. After reviewing the report, an assessment of the areas that require investigation will be made and the type of investigation required will be identified.

Database searches to include, but not limited to, Richmond County tax records, National Register of Historic Places, and Georgia Natural and Historic Resources GIS (GNAHRGIS) will be conducted to determine the approximate age and condition of the standing structures in the Kissingbower area. Information from the database searches will be used to determine the level of investigation or documentation that will be required during the Planning, Engineering and Design (PED) phase.

Phase II Section 106 compliance activities will take place during PED phase and will entail cultural resources fieldwork (Phase I survey/assessment) of the proposed construction lay down areas and the structures in the Kissingbower area. Until construction lay down areas and access roads have been identified no costs for Phase II activities will be submitted. Fieldwork must be conducted, however, in order to complete the Section 106 of the National Historic Preservation Act compliance for this project unless the area has been previously surveyed and no potentially eligible or eligible sites were identified. Fieldwork will be contracted.

### **Report Review and Database Searches**

Preliminary work will entail reviewing the 2005 report to determine which areas were investigated for cultural resources. If the Rosedale Dam was not surveyed during that field assessment a review of the GA State Site files will be conducted to determine if the area was previously surveyed as part of an unrelated project and if recorded archaeological sites are present. Database searches to gather information about the Kissingbower standing structures will also be conducted. This can be done using in-house resources.

The preliminary site file/database search will identify recorded sites and areas that have been previously surveyed for cultural resources. Information will be necessary in future planning to avoid impacts to areas that contain recorded historic properties.

The information about the 2005 survey, results of the database searches and recommendations for future work will be incorporated into the Environmental Assessment.

Section 106 of the NHPA consultation with the GA State Historic Preservation Office will also be initiated during Phase I. A letter that identifies the project (i.e., undertaking), previous investigations, and the proposed phased approach will be prepared and coordinated. Letters to the tribes will also be prepared.

**Cultural Resources Level of Effort  
Table 4**

<b>Task</b>	<b># of Days</b>	<b>Total Labor Cost</b>
Report Review	3+	\$3,000
Database Search	3.7	\$3,500
Sec 106 letters	1.3	\$1,250
EA Cultural Write up	1.3	\$1,250
DQC/ATR Comments	1.3	\$1,250
Meetings 2 hrs for 18 mths	4.7	\$4,500
Site file search fee		\$250
<b>TOTAL</b>		<b>\$15,000</b>

### **Cultural resources field investigations**

Once the construction areas have been identified, fieldwork will need to be conducted to locate and evaluate cultural resources. Until those areas have been identified, no costs will be submitted for this phase. A site visit and assessment of the standing structures will also be necessary during the second phase. The fieldwork would be contracted out and cost will include contract amount, labor for Contracting Division and for PD contract administration and oversight.

### **Assumptions**

The Scope of work and associated costs are based on the following assumptions:

- There is minimal risk associated with postponing the fieldwork to the PED phase for the structures assessment and additional fieldwork for previously unsurveyed portions of the project.
- The GA SHPO will concur that fieldwork can be conducted in the PED Phase.

- No historic properties are located within the Area of Potential Effect that will require mitigation.
- The Kissingbower structures will have no cultural resources constraints such as NRHP listing or historic neighborhood district determination.

### **Economics: \$79,200**

The economic analysis will be an update of the existing data and information in the Draft 21 February 2006 Economics Evaluation Appendix of the Augusta, Georgia Flood Control Study. Two alternatives will be evaluated in the economic analysis: Rosedale Detention Basin and Kissingbower Road Non-Structural and Recreation Park Alternatives. Both alternatives were evaluated in the 2006 Augusta-Richmond County Regional Flood Control Draft Interim Feasibility Report using FY04 price levels and discount rate.

Economic benefits will be updated by sampling. A sample of the existing structures will be selected for developing Marshall and Swift replacement cost less depreciation values. The values derived will be used to represent the percentage increase in value for the floodplain. A windshield survey will be conducted to confirm the structure inventory and include any changes. Changes will also be made to content value. It is likely that the final economic analysis will need to be conducted using FY15 price levels and discount rate. The HEC-FDA model will be used to determine the damages. New cost estimates for Rosedale Pond and Kissingbower Park alternatives will reflect the most current price levels. Average Annual Benefits and Average Annual Costs will be calculated using the most recent discount rate.

This scope includes identification and field confirmation of number and types of structures; input of base data into FDA model; collection of all pertinent data for structures; calculation of expected average annual damages under existing condition and without project future condition; calculation of expected average annual damages for 1 structural and 1 non-structural alternative; calculation of the NED plan; a draft report; a final report; a risk registier; a financial asesment; and a cost-share analysis.

### Economics Level of Effort Table

Task	# Of Days	Total Labor Costs
Kick-Off Meeting	2	\$2,200
Socio-economic Characteristics	5	\$5,500
Collect and review existing data, reports, and model runs	3	\$3,300
Inventory Properties	5	\$5,500
Average Annual Benefits Analysis: HEC-FDA model runs	12	\$13,200
Recreation Analysis	3	\$3,300
Average Annual Cost Analysis	3	\$3,300
Evaluate Alternatives	3	\$3,300
Risk Register	4	\$4,400
Report Writing	12	\$13,200
Financial Assessment	2	\$2,200
Cost sharing Analyses	5	\$5,500
DQC updates	3	\$3,300
Collaboration & Public Involvement Site Visits	4	\$4,400
Monthly meetings w/ team @ 2 hrs ea for 24 mths	6	\$6,600
<b>TOTAL</b>		<b>\$79,200</b>

### Plan Formulation: \$60,000

The Plan Formulator shall lead the plan formulation of this study. The contractor and non-federal sponsor shall provide input to the Plan Formulator, just as all in-house team members will.

Plan formulation is the process whereby study alternatives (specific project features) are conceived and developed to satisfy planning objectives. Combinations of measures are then coordinated to develop comprehensive, systematically formulated alternatives.

Alternatives consist of a system of structural and/or nonstructural measures, strategies, or programs formulated to identify the most cost effective method to restore the degraded ecosystem into a more natural condition, which will involve consideration of the ecosystem's natural integrity, productivity, stability and biological diversity.

Alternatives are formulated in consideration of four criteria: Completeness, Effectiveness, Efficiency, and Acceptability. Completeness is the extent to which a given alternative provides and accounts for all necessary investments or other actions to ensure the realization of the planned effects. Effectiveness is the extent to which an alternative solves the specific problems and achieves the specified opportunities. Efficiency is the extent to which an alternative is the most cost effective means of solving the problem and realizing opportunities consistent with protecting the nation's environment. Acceptability of the alternative is acceptance by state and local entities and the public and compatibility with existing laws, regulations, and public policies.

Documentation of the plan formulation process will be prepared and incorporated into the main body and technical appendices of the feasibility report.

In summary, the Plan formulator will be involved on working with for the following:

- Vertical team scoping meeting – prep, attending, preparing notes for team and Review Plan.
- Develop initial list of management measures
- Compare alternative plans
- Prepare draft and final reports
- ATR comments & DQC comments incorporated into reports
- Report Preparation/Reproduction
- Attend PDT meetings and take notes

#### **Study Management and Report Preparation/Reproduction**

The Plan formulator will help the PM manage the feasibility phase of the study. The non-federal sponsor will be an active participant of the PDT. Study management efforts will ensure that the planning goals, objectives and guidance are responded to; the feasibility report proceeds on schedule; and all items in the scope of work are preformed. The PM will be responsible for the development of report schedules and the organization of work to be performed; holding periodic meetings with technical elements to review progress; preparing project related correspondence; coordinating with federal, state, and local agencies to ensure that all have been informed of proposed plans of improvement, as well as the progress of the study; and providing guidance and support as required to ensure that questions have been answered and problems have been resolved from the start of the study to the review and approval of the final report at higher levels.

The PM and Plan Formulator will also be responsible for coordinating and setting up the Agency Technical Reviews (ATRs). The Plan formulator is responsible for working with the ATR in DrChecks and responding to their comments and questions.

The Plan Formulator will be responsible for writing the draft and final feasibility reports, all revisions, and all coordination that is involved with these efforts. The Plan formulator will also prepare the Review Plan (RP) and be responsible for providing the RP to SAD and if necessary, a center of expertise.

The PM, and the Plan Formulator, along with the PDT will be responsible for the development of planning alternatives and will ensure that the study tasks in the PMP are executed on time and within budget. PDT meetings will be held with the technical specialists working on the study items to discuss the status of the study and share information. These meetings will provide a forum for communication between team members for the purpose of resolving major and minor issues and scheduling future work. Progress and problems shall be discussed to facilitate actions by management to allot resources, coordinate issues, or seek additional advice or expertise so as to maintain study progress and to address all relevant issues. They will also identify and address pertinent issues and act within their authority to resolve them. Study team meetings will be held on a monthly basis.

The PDT, including the sponsor, and led by Engineering will develop a "risk register" as part of the study that will list contingencies outside of the scope of the study that have potential to impact the success of the proposed improvements. All risks have not been identified at this time but will be determined during the feasibility study including loss of life, property, etc. Risk parameters may include description, probability, impact, possible counter measures, planned response and mitigation should risk occur, etc.

This study would not significantly benefit from an IEPR because none of the triggers or criteria for an IEPR is met and the decision document would be so limited in scope and impact. However, a risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation will be prepared and submitted for approval in an updated Review Plan prior to the initiation of the design/implementation phase of this project.

Coordination with other agencies shall include phone calls, e-mails, on-site visits and/or correspondence with federal, state, and local government agencies; institutions; businesses or groups with expertise, responsibilities, or resources related to shore protection, inlet studies or management, transportation, highways, environmental resources, or other areas of interest.

The feasibility report shall consist of the Main Report, National Environmental Policy Act of 1969 (NEPA) document, and related appendices and will be prepared in compliance with the requirements of Engineer Regulation 1105-2-100, Policy and Planning, Guidance for Conducting Civil Works Planning Studies. The report shall be a complete decision document and as such shall include a complete presentation of plan

formulation. The report shall be based on studies and investigations conducted as part of the feasibility study and from published reports applicable to the study area. The main report shall be direct, concise, and written in an easy-to-understand style using appropriate graphics, illustrations, and photographs. The main report shall include the study findings and recommendations.

The length and detail of the NEPA document shall conform to the regulations contained in Engineer Regulation 200-2-2, Policy and Procedures for Implementation of the National Environmental Policy Act.

The appendices shall be technical reports written for technical reviewers. The length and detail of the appendices shall be sufficient to cover all aspects of the subject. Ample graphics and other illustrations shall be used to facilitate the presentation.

**Plan Formulation  
Table 5**

<b>Task</b>	<b># Of Days</b>	<b>Total Labor Costs</b>
Plan Formulation of alternatives	10	\$9,600
Risk Register	5	\$5,000
Initiate draft report and coordinate appendices	7	\$6,720
DQC cmts incorporated into report	3.5	\$3,360
Supervision & Clerical		\$5,000
Coordination & Public Involvement & site visits	4	\$3,840
Work with the ATR(s)	6	\$5,760
Monthly meetings w/ team @ 4 hrs ea for 24 mths	12	\$11,520
Report Preparation	17	16,320
<b>TOTAL Rounded down</b>		<b>\$60,000</b>

## PROJECT MANAGEMENT & PROGRAMS

Total Estimated Cost: \$84,700

Table 6

Task	# of Days	Total Labor Costs
Project Management Plan (PMP)	5	\$4,800
Coordination with non-federal sponsor and in-house team members	20	\$19,200
Budget and schedule (including Programs)	24	\$23,040
Feasibility Cost Sharing Agreement (FCSA)	5	\$4,800
Coordination & Public Involvement & site visits	10	\$9,600
Meetings with non-federal sponsor, and in-house team (this includes discussions on alternatives) Also PRB meetings	7	\$6,720
Monthly team meetings (24 months) 4 hrs ea	12	\$11,500
Programs	5+	\$5,000
<b>TOTAL (rounded up)</b>		<b>\$84,700</b>

Project Management's specific role and responsibilities consist of coordination with the non-federal sponsor and ensuring that the cost, budget, schedule, scope and quality requirements are met. The PM will coordinate with the functional elements of the non-federal sponsor as well as the entire PDT and maintain a schedule with a budget in P2. The PM manages the delivery of the parameters related to the completion of the feasibility report and with authority to control all direct charges to the project accounts. Although the technical managers are responsible for the content and quality of the technical products, the PM has overall responsibility to ensure technical integrity. The PM is responsible for coordinating with Office of Council and the signing of the Feasibility Cost Sharing Agreement (FCSA).

Study budgeting and accounting shall require preparation of annual budget documentation and monitoring of study expenditures. Budget documentation shall consist of the project cost and benefit estimates, the study cost estimates, and related project information sheets needed to support budget reviews, and to reflect changing interest rates or cost estimates. Monitoring and managing of study funds shall require preparation of annual obligation and expenditure schedules and monthly fund obligation projections; regular continuing review of progress relative to expenditures; monthly review and reconciliation of Corps of Engineers Financial Management System (CEFMS) status report with actual and planned charges against the study; coordination of progress on funds obligations and expenditures with reviewing headquarters; and negotiations, transfer of funds, and monitoring expenditures for U.S. Fish and Wildlife Service studies.

Coordination with other agencies shall require on-site visits and/or correspondence with federal, state, and local government agencies; institutions; businesses or groups with

expertise, responsibilities, or resources related to shore protection, inlet studies or management, transportation, highways, environmental resources, or other areas of interest.

**ENGINEERING DIVISION**  
**Total Estimated Cost: \$74,000**  
**Table 7**

Labor/Task	Duration ( Days)	Cost
Hydrologic and Hydraulic Modeling	75	\$25,000
Update Eng Appendix	30	\$10,000
Geotechnical	75	\$19,000
Estimating	20	\$20,000
<b>TOTAL</b>		<b>\$74,000</b>

This proposal outlines the tasks required for EN-H to provide to PD the water surface profile output from HEC-RAS in the appropriate format for input to the HEC-FDA economics model. The HEC-RAS model takes input of cross-section topography; bridge, culvert and roughness data; and steady flow discharge and uses that information to compute a water surface elevation at each cross-section and for each flow rate specified. The input requested by PD for economic analysis is: (1) existing and future unimproved conditions, (2) future land use conditions without project, and (3) future land use conditions with the proposed project. The with-project condition consists of the proposed Rosedale Dam as per the previous concept design. The proposed project also includes a non-structural plan for the Kissingbower neighborhood, but that feature requires no change to the hydrologic or hydraulic models. No attempt will be made to model a larger or smaller Rosedale structure for optimization. The reason for this is that the Rosedale Pond was previously made as large as reasonably possible without major impacts to existing homes, roadways and infrastructure, thus a larger dam is not feasible. No smaller dam was examined because much of the dam structure is already in place, and the proposed dam already provides less storage than needed, therefore building a lower dam would incur additional cost and produce reduced benefits. Additional model runs will need to be made to size the culvert correctly to provide passage for low flows, and to provide overtop depths and velocities for EN-G to be able to design slope protection to allow overflow without failure.

Water surface profiles will be developed for 8 (2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year) hypothetical events. The HEC-HMS rainfall-runoff model will be used to determine Rosedale Dam reduced flood flows to be input to the with-project HEC-RAS model. We have a DVD with the existing and future without-project models. The HEC-RAS will need to be re-run to obtain the FDA-formatted output. The HEC-HMS will only be run for the with-project simulation. Some troubleshooting may be necessary to get

the 8 to 10 year old HEC-HMS and HEC-RAS input files to run with current versions of the software.

EN-GS Scope: The soils section (EN-GS) will attend meetings and provide support to EN-H, the ATR team members and other project delivery team members. During report preparation EN-GS will be responsible for completing assembly of the Engineering Appendix. A review of the entire report will also be performed to verify that the analysis has been documented and accomplished in accordance with applicable regulations, Corps design criteria, recognized published texts, and sound engineering practice Hydraulic models will be used to provide to PD the water surface profile output from HEC-RAS in the appropriate format for input to the HEC-FDA economics model. Output will be used to update tables used in 2006 Flood Damage Reduction Study for the Rocky Creek portion of the study

**REAL ESTATE DIVISION**  
**Total Estimated Cost: \$55,000**  
**Table 8**

Labor/Task	Duration (Days)	Cost
Real Estate Specialist plus Approval Levels	35	\$ 31,500
Real Estate Appraisal plus Approval Levels	18	\$21,000
Appraisal Travel	5	\$ 2,500
<b>TOTAL</b>		<b>\$55,000</b>

**REAL ESTATE SUPPLEMENT REPORT. (\$31,500)** The report includes an evaluation of the real estate requirements describing the proposed project currently under consideration in which a Federal interest might exist. The real estate items of work to be included in this report will include descriptions of the minimum real estate requirements for the proposed project, estates to be acquired for the project, land cost (lands, easements, rights-of-way and relocations and disposal/borrow areas (LERRDs)) with costs estimated using M-CACES system in the cost code accounts format as well as the schedule for real estate activities. Real Estate will also provide economics and cost estimation with an update of property values using Marshall and Swift replacement less depreciation values, cost for non-structural acquisition, demolition, relocation and administration. The result of this research will be organized into a Real Estate Supplement Appendix for the comprehensive Feasibility Report.

Real estate work items will require a search of the local public records, i.e. tax office and county clerk's office, to obtain ownership data including owners and types of

residential, industrial, or commercial properties, the estimated acreage, potential Public Law 91-646 relocations, the estates to be acquired and any other real estate requirements appropriate for the project.

An assessment will be made of what facilities must be relocated, including roads, pipelines, utilities, and bridges, when applicable. The Real Estate Supplement will include a statement as to whether the Government, the local Sponsor, or the owners will be responsible for the relocation and acquisition of the required rights-of-way and the costs for relocation and land to be acquired allocated to each entity. Other investigations of land for the borrow area, pipelines routes, and staging areas will be conducted.

**GROSS APPRAISAL. (\$23,500)** Savannah District, Real Estate Division is required to prepare a gross appraisal during the Feasibility Study or when agreed, the Local Sponsor may provide the gross appraisal for the cost shared project. The work efforts involved include a discussion of the existing restrictions of the easements, a total estimated value for fee and easement estates, including improvements, minerals, if any, severance damages, special features of the land, timber, minerals, water rights, existing encumbrances, the highest and best use involved, the verified market data utilized to support the valuation, a discussion of the relationships between the market (support and analysis) and the subject area, and appraiser qualifications. This document must be sufficient detail to provide an accurate cost estimate that will be sufficient for authorization. This appraisal is expected to be in compliance with the Uniform Standards of Professional Appraisal Practice as promulgated by the Appraisal Standards Board of the Appraisal Foundation.

**PHYSICAL TAKINGS ANALYSIS. (if required)** This analysis will result in a written legal opinion as to whether flooding induced by construction, operation or maintenance of the proposed project will result in a taking of an interest in real property for which just compensation must be paid to the owner. The opinion must describe the analysis, to include hydrological data incorporating depth, frequency, duration, velocity and extent of induced flooding based on economic data, as well as relevant state and Federal law, and present a conclusion on the takings issue.

### ADDITIONAL SCHEDULED TASKS

Total Estimated Cost: \$185,000

Table 9

Labor/Task	Cost
PMP	\$10,000
Kick off Scoping Meeting	\$10,000
Review Plan	\$10,000
FCSA Approved	\$10,000
Report Review by PDT & cmts incorporated	\$10,000
DQC	\$8,000
ATR cost estimate by Walla Walla	\$5,000
ATR on Draft Report	\$20,000
ATR comments incorporated – Report Revised	\$10,000
Public and Agency Review	\$20,000
Incorporate changes into Report	\$20,000
Report Reproduction	\$5,000
ATR on Final Feasibility Report	\$20,000
Incorporate ATR Comments	\$10,000
Prepare and Route Final RPT/EA/FONSI	\$5,000
Final Report to SAD	\$2,000
<b>TOTAL</b>	<b>\$175,000</b>

### 3.0 PROJECT DELIVERY TEAM –

#### 3.1 Team Members:

#### Project Delivery Team

Table 10

Discipline	Office/Agency	Phone Number
Project manager	CESAS-PM-C	912-652-5804
Plan formulator	CESAD-PD	912-652-5375
Environmental	CESAS-PD	912-652-5793
Economics	CESAS-PD	912-652-5008
Cultural Resources	CESAS-PD-EM	888-893-0678
Real Estate	CESAS-RE-AP	912-652-5667
Hydraulics	CESAS-EN-H	912-652-5542
Geotechnical	CESAS-EN-GS	912-652- 5023
Cost Estimating	CESAS-EN-ET	912-652-5663
CCO	CESAS-CCO	912-652-5014
Construction	CESAS-CD-TM	912-652-5407
Operations	CESAS-OP-NN	912-652-6086
RMO-SAD	CESAD-PDP	404-562-5226
Sponsor	Augusta-Richmond County, GA	706-796-5040

## 4.0 CRITICAL ASSUMPTIONS AND CONSTRAINTS

### 4.1 Critical Assumptions:

The Scope of work and associated costs are based on the following assumptions:

- There is minimal risk associated with postponing the fieldwork to the PED phase for the structures assessment and additional fieldwork for previously unsurveyed portions of the project.
- No historic properties are located within the Area of Potential Effect that will require mitigation.

### 4.2 Constraints:

Many of the reaches observed along Rocky Creek are moderately to heavily incised and therefore isolated from the previously functional floodplain. Due to the adjacent residential, commercial and industrial development typical of urban areas, there are numerous constraints such as sewer lines, private homes, or other structures. Proposed ecosystem restoration should also avoid impacts to wetland areas, previously undisturbed hardwood habitat areas, or stream segments with a stable bottom and other intact natural stream features. The main project purpose for this feasibility study is to consider prevention and/or reduction of flood damages.

## 5.0 WORK BREAKDOWN STRUCTURE (WBS):

The WBS can be viewed in P2 or CMI. See the Table of Contents for the link.

The WBS is a deliverable-oriented, list of tasks required to accomplish the scope of work. It is product-oriented to facilitate performance measurement. The WBS will specify the task and subtask necessary to fulfill the objectives of the project.

## 6.0 ACQUISITION PLAN:

The acquisition plan will be determined upon approval of this feasibility study.

## 7.0 SCHEDULE:

See Appendix 1 for updated schedule.

## 8.0 PROJECT QUALITY CONTROL PLAN AND OBJECTIVES:

### 8.1 Quality Management Plan:

The QMP documents project-specific quality assurance and quality control procedures appropriate to the size, complexity, and nature of the project. In addition to quality management objectives developed as part of PMPs for projects, the system for Quality Management is managed at both the District level and at a District/Center/MSD level. Project-specific Quality Management objectives accompanying each PMP shall be consistent with the organization QMP unless documented. (as prescribed by ER 1110-1-12)

A fundamental objective is to provide a quality product as tasked. Project quality will be assured throughout the development of the deliverables. The project will be implemented to meet all applicable quality standards. (Engineering Regulation Numbers ER 1105-2-100 and ER 1165-2-1 will be adhered to.)

## 9.0 RISK ANALYSIS

Risk identification will be accomplished by both identifying causes-and-effects (what actions could happen and what are the results of these actions) and by identifying effects-and-causes (what outcomes are to be avoided or encouraged and how each might occur). There will be sources of risk and risk events that the PM and the PDT team will consciously decide to avoid, mitigate, accept, or ignore. Common sources of risk includes changes in requirements, errors, omissions, and misunderstandings, poorly defined or understood roles and responsibilities, poor estimates, or insufficient resources. One such risk is that the schedule may be negatively impacted due to a change in priorities by either the Corps or the non Federal sponsor. Another risk could be a loss of funds by either the Federal government or the non-Federal sponsor. The PDT will endeavor to identify them and prepare for them in advance wherever possible.

The Risk Management Plan, REF8007G of the Project Management Business Process Manual will be implemented and posted on the USACE web site.

## 10.0 SAFETY AND OCCUPATIONAL HEALTH PLAN. Refer to Safety and Occupational Health Plan :

All work conducted by the Corps of Engineers shall be subject to safety considerations. The Corps is committed to take all reasonable precautions to protect the safety and health of its employees, contractor personnel and members of the public. The Corps of Engineers Safety Manual, EM 385-1-1, is the governing document.

The project does not appear to involve nor is it located within a site containing data of a sensitive or classified nature. Any changes in the status of the project security classification will be coordinated with the District's Security Officer.

The Safety and Occupational Health Plan, REF8016G of the Project Management Business Process Manual will be implemented and posted on the USACE web site.

## 11.0 CHANGE MANAGEMENT:

Change control will be executed by the PDT using the revision of scope and cost estimates. If concurred in by the PDT, USACE labor and contract cost and schedule changes will be documented by the application of ER-5-1-11(Management - U.S. Army Corps of Engineers Business Process), with the use of coordinated Schedule and Cost Change Requests (SACCR). Each SACCR outlines the potential change, and the impacts of that change. The Chief of Civil Works Programs and Project Management will monitor the review and approval of the SACCR by the South Atlantic Division programs staff.

Schedule changes and supporting justification after approval by the PDT will be submitted to the Project Review Board. Potential changes will be forecasted by the PDT through the project schedule as early as possible. If the total project cost is scheduled to exceed the current baseline estimate or if the change results in a delay in the project completion date, the SACCR will require the approval of the Director of Civil Works, SAD.

The Change Management Plan, PROC 3010 of the Project Management Business Process Manual will be implemented and posted on the USACE web site.

## 12.0 COMMUNICATIONS:

All inquiries related to public and legislative affairs will be referred to and coordinated through the Corporate Communications Office (CCO). All scheduled Corps' activities related to public and legislative affairs will be processed through the Public Affairs Office. A monthly update on progress and expenditures will be reported at the monthly PRB meetings utilizing Automated Information Systems for tracking of the project. Monthly PDT meetings will be held.

Communications occur in two major arenas; internal to the PDT and external to the PDT. The following paragraphs describe our approach to communications.

Project review meetings shall be held at monthly intervals for the purpose of reviewing the status of each in-progress task, evaluating progress, identifying issues requiring resolution, and planning for future key events or milestones. Each functional sub-division or organization performing work on a project activity shall be represented throughout the entire meeting by a person knowledgeable of their organization's status and empowered to commit to changes or courses of action by their organization. These meetings will be conducted at the Corps' Savannah District office with sponsor involvement in person or by teleconference.

Cost and status reporting shall be conducted on a monthly basis. If the necessity arises unique reporting formats shall be developed and provided by the PM to the Augusta/Richmond County representatives.

The schedule and the PMP will be used to manage and gauge the progress of the work through project completion. It may be modified to meet the project requirements. All reporting of progress, status, cost, budgets, milestone events, future key events, resource utilization will utilize the schedule and PMP as the source documents.

PDT meetings will be held on a monthly basis. For those not immediately available a conference phone line will be used. Team meetings may be called at other times if necessitated by current developments. Day to day business may be conducted by E-mail.

### 13.0 VALUE MANAGEMENT:

Value engineering (VE) is an organized process of analyzing the function of construction, equipment, and/or supplies for the purpose of achieving the required function at the lowest total cost while maintaining requirements for performance, reliability, quality and maintainability. VE is not intended to delete items and jeopardize the function for the sake of saving money.

Current USACE policy requires VE studies on all projects with a programmed cost of \$2 million or more, when cost effective. In addition, for Civil Works projects over \$10 million, EC 1110-2-25 requires a cost effectiveness review, accomplished under the direction of the VE officer, using VE methodology and a certificate of cost effectiveness. (ER 1110-2-1150)

However because of the basic nature of the probable structural solutions in this project the PDT doesn't anticipate a VE study being required

The Value Management, REF 8023G of the Project Management Business Process Manual will be implemented and posted on the USACE web site.

### 14.0 DATA MANAGEMENT PLAN:

This project will employ multiple Automated Information Systems to manage all the data associated with this project including P2, CEFMS, CMI, and Microsoft Project. The final project report, complete with all appendices will be provided to the sponsor in Adobe PDF format.

Appendix:

1

*SCHEDULE*

ID	Predecessors	Task-Augusta Flood Risk Management	Duration	Start	Finish	Dec	2011	Jan	Feb	Mar	Apr	May	Jun
1		Augusta "Rocky Creek" CAP 205 12 16 13	1797 days	Wed 10/2/13	Thu 8/20/20								
2		Rocky Creek Feasibility Study	845 days	Wed 10/2/13	Tue 12/2/16								
3		PMP	76 days	Wed 10/2/13	Wed 1/15/14								
4		Kick off- Scoping Meeting	1 day	Thu 10/17/13	Thu 10/17/13								
5		Review Plan draft	45 days	Wed 10/2/13	Tue 12/3/13								
6		Review Plan to SAD	45 days	Wed 12/4/13	Tue 2/4/14								
7		Post Review Plan (CW 035)	3 days	Wed 2/5/14	Fri 2/7/14								
8		Draft FCSA	60 days	Wed 12/4/13	Tue 2/25/14								
9		Submit FCSA to SAD	3 days	Wed 2/26/14	Fri 2/28/14								
10	3,9	FCSA Approved (CWM090)	60 days	Mon 3/3/14	Fri 5/23/14								
11	10	FCSA Executed (CW130)	10 days	Mon 5/26/14	Fri 6/6/14								
12	11	EN-H modeling to include local pond data	75 days	Mon 6/9/14	Fri 9/19/14								
13	12	Validate feature designs and incorporates any req'd changes	10 days	Mon 9/22/14	Fri 10/3/14								
14	13	Economic Analysis and Apenix	154 days	Mon 10/6/14	Thu 5/7/15								
15	13	Develop MCACES for Selected Plan	10 days	Mon 10/6/14	Fri 10/17/14								
16	13	Real Estate Appraisal	90 days	Mon 10/6/14	Fri 2/6/15								
17	13	Revised Real Estate Appendix	130 days	Mon 10/6/14	Fri 4/3/15								
18	13	Revise Engineering Appendix- tables/charts/etc	30 days	Mon 10/6/14	Fri 11/14/14								
19	15	Draft EAF/ONSI- describe new NED	150 days	Mon 10/20/14	Fri 5/15/15								
20	15	Coordination Report	150 days	Mon 10/20/14	Fri 5/15/15								
21	13	Cultural Resources	150 days	Mon 10/6/14	Fri 5/1/15								
22	21	Draft Feasibility Report	90 days	Mon 5/4/15	Fri 9/4/15								
23	22	Report Review by PDT& Comis incorporated	10 days	Mon 9/7/15	Fri 9/18/15								
24	23	DQC	10 days	Mon 9/21/15	Fri 10/2/15								
25	24	ATR Cost estimate by CTX Walla Walla	10 days	Mon 10/5/15	Fri 10/16/15								
26	23	ATR at CX SPD	10 days	Mon 9/21/15	Fri 10/2/15								
27	26	Comments incorporated/report revised	15 days	Mon 9/21/15	Fri 10/2/15								
28	27	Public and Agency Review	30 days	Mon 10/5/15	Fri 10/23/15								
29	28	Incorp changes into Rpt	10 days	Mon 10/26/15	Fri 12/4/15								
30	29	Report Reproduction	7 days	Mon 12/7/15	Fri 12/18/15								
31	30	IEPR I	90 days	Mon 12/21/15	Tue 12/29/15								
32	31	Receive cmis	3 days	Wed 12/30/15	Tue 5/3/16								
33	32	Prepare responses to cmis	10 days	Mon 5/9/16	Fri 5/20/16								
34	33	Incorp changes into Rpt	10 days	Mon 5/23/16	Fri 6/3/16								
35	32	Revise EAF/ONSI	15 days	Mon 5/9/16	Fri 5/27/16								
36	34	ATR	14 days	Mon 6/6/16	Thu 6/23/16								
37	36	Incorporate comments	14 days	Fri 6/24/16	Wed 7/13/16								
38	37	Legal Review	5 days	Thu 7/14/16	Wed 7/20/16								
39	38	Prepare & Route FINAL RPT/EAF/ONSI	10 days	Thu 7/21/16	Wed 8/3/16								
40	39	DE signs F/ONSI	1 day	Thu 8/4/16	Thu 8/4/16								
41	40	Final Rpt to SAD	3 days	Fri 8/5/16	Tue 8/9/16								
42	41	SAD Review	30 days	Wed 8/10/16	Tue 9/20/16								
43	42	Incorp SAD comments/revise report	15 days	Wed 9/21/16	Tue 10/11/16								
44	43	Brief Division Engineer	10 days	Wed 10/12/16	Tue 10/25/16								
45	44	Div Eng Submittal to SAD	15 days	Wed 10/26/16	Tue 11/15/16								
46	45	SAD letter of Approval	30 days	Wed 11/16/16	Tue 12/27/16								
47	SSS	Program and Project Management	800 days	Wed 10/2/13	Tue 10/25/16								

**CAPITAL PROJECT BUDGET  
ROCKY CREEK FLOOD HAZARD MITIGATION  
CHANGE NUMBER ONE**

BE IT ORDAINED by the Commission-Council of Augusta-Richmond County, Georgia that the following Capital Project Budget is hereby authorized:

Section 1: The project is authorized for Capital Project Budget for the Rocky Creek Drainage Basin & Flood Hazard Mitigation in the amount of \$318,950 for the Augusta Regional Flood Control Feasibility Study to complete the Rocky Creek Flood Risk Mgmt, Section 205 study. Funding is available in the project contingency account to be transferred to the project engineering account.

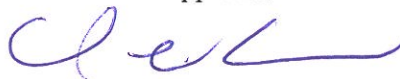
Section 2: The following revenues are anticipated to be available to the Consolidated Government to complete the project.

Special 1% Sales Tax, Phase IV	\$ 3,621,900
Special 1% Sales Tax, Phase VI	<u>\$ 3,500,000</u>
	\$ 7,121,900

Section 3: Copies of this Capital Project Budget shall be made available to the Comptroller for direction in carrying out this project.

Adopted this 31<sup>ST</sup> day of MARCH 2014.

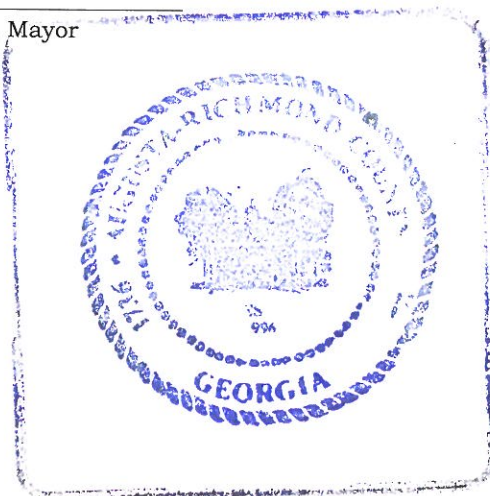
Approved



AGM  
3/27/14

Honorable Deke Copenhaver, Mayor

Original-Commission Council Office  
Copy-Engineering Department  
Copy-Finance Department  
Copy-Procurement Department



**CAPITAL PROJECT BUDGET  
ROCKY CREEK FLOOD HAZARD MITIGATION  
CHANGE NUMBER ONE**

<b><u>SOURCE OF FUNDS</u></b>	<b><u>CPB AMOUNT CPB</u></b>	<b><u>CPB CHANGE</u></b>	<b><u>NEW CPB</u></b>
SPECIAL 1% SALES TAX, PHASE IV FUND BALANCE	\$3,621,900	\$0	\$3,621,900
SPECIAL 1% SALES TAX, PHASE VI 000-0000-0000000	\$3,500,000		\$3,500,000
<b>TOTAL SOURCES:</b>	<b>\$7,121,900</b>	<b>\$0</b>	<b>\$7,121,900</b>

**USE OF FUNDS**

ENGINEERING 324-04-1110-5212115-	\$500,000	\$319,000	\$819,000
CONTINGENCY 324-04-1110-6011110-	\$6,621,900	(\$319,000)	\$6,302,900
<b>TOTAL USES:</b>	<b>\$7,121,900</b>	<b>\$0</b>	<b>\$7,121,900</b>